



Fig. 3. Satellite SST distribution for August 25, 1996, with a cartoon of the summer surface circulation features identified during RR96 by Robinson et al. (1998b). The picture was downloaded from the real-time unclassified RR96 World Wide Web server of the SACLANTCEN.

The variability in the Strait occurs at several scales (Robinson et al., 1998b). The AIS interacts along its path with various energetic mesoscale events (e.g., eddy formation, filaments, unstable meanders), with time-scales of order of days (Moretti et al., 1993 and references therein). Weather patterns and associated winds can influence the internal dynamics, as exemplified by the cold upwellings along the southern coast of Sicily (Fig. 3). At higher frequencies, the gravity and Ionian shelf waves, the inertial component and tidal effects are important. Finally, mixing events between the double flow system occur, which has led to defining multiple water masses (Warn-Varnas et al., 1998).

2. Estimation parameters

2.1. Data

The hydrographic observations collected from the beginning of RR96 until Sept. 15 are illustrated on Fig. 4a. This is the data set utilized to estimate the initial ocean fields and their error subspace on Sept. 15 (Sections 2.3 and 3.1). It contains 926 hydrographic